

I Claim:

1. A sensor for measuring heat flux in a solid body comprising:
 - a thin substrate of thermally conducting, electrically insulating material;
 - a thin film thermopile deposited on a surface of said substrate with hot junctions near one end of said substrate and cold junctions near the other end of said substrate;
 - a thin, flat plate of thermally conducting, electrically insulating material for covering the thermopile on said substrate;
 - electrical connections on said thin film thermopile for measuring its voltage; and
 - means for imbedding said substrate and said plate within said solid body.
2. The sensor of claim 1 in which said means for imbedding said substrate and said plate within said body comprise:
 - a threaded, slotted plug for holding said substrate and said flat plate together; and
 - a threaded hole in said solid body.
3. The sensor of claim 1 in which said means for imbedding said substrate and said plate within said body comprise:
 - a cylindrical plug for holding said substrate and said flat plate together; and
 - a hole in said solid body with diameter suitable for a press fit of said plug into said hole in said solid body.
4. The sensor of claim 1 in which said slot is formed in the side of said plug.
5. The sensor of claim 1 in which said slot is formed in the end of said plug.
6. The sensor of claim 1 in which said means for imbedding said substrate comprises a hole in said solid object sized for pressing the combination of said substrate and said flat plate directly

into said solid object.

7. The sensor of claim 1 in which the materials of said substrate and said flat plate have thermal properties closely matching those of said solid object.

8. The sensor of claim 2 in which the materials of said substrate and said flat plate and said plug have thermal properties closely matching those of said solid object.

9. A method for measuring heat flux in a solid body consisting of:

depositing a thin film thermopile on a thin substrate of thermally conducting, electrically insulating material with hot junctions near one end of said substrate and cold junctions near the other end of said substrate;

covering said thin film thermopile on said substrate with a thin, flat plate of thermally conducting, electrically insulating material;

imbedding said substrate and said plate within said solid body; and
making electrical connections to said thermopile.

10. The method of claim 9 in which the materials of said substrate and said flat plate have thermal properties closely matching those of said solid object.

11. The method of claim 10 in which said substrate and said plate are imbedded by first enclosing them in a threaded plug whose thermal properties closely match those of said solid object and inserting said plug in a threaded hole in said solid body.